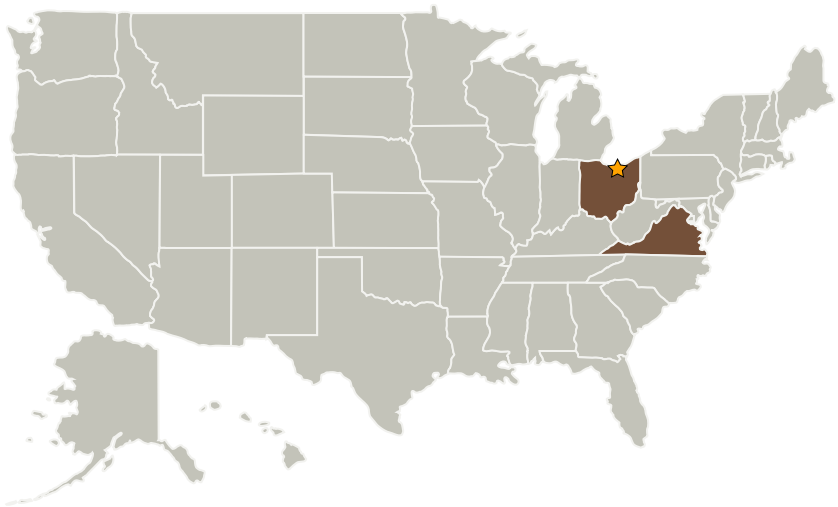
Autonomous Facility Health-Enabled Test Instrumentation, Phase I

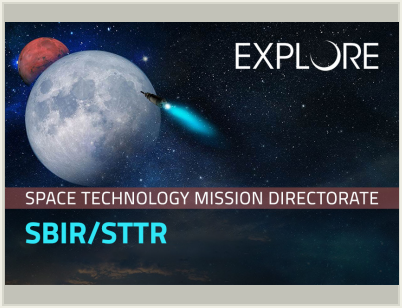
Completed Technology Project (2007 - 2007)

Project Introduction

The combination of smart devices and embedded metadata and networked (wire and wireless) technologies present real opportunities for significant improvements in reliability, cost-benefits, and safety for remote testing, performance measurement, and facility management. Adding robust and autonomous network protocol for routing will further simplify testing installation process and increase test facility reliability. However, the realization of a practical autonomous facility test system requires the synthesis of several technologies. One must bring together knowledge in the fields of sensors, data processing, distributed systems, and networks. Mobitrum proposes to develop "an autonomous facility health-enabled test instrumentation" for characterization and measurement of ground test facilities. The proposed device includes: (1) facility health-enabled sensor, (2) signal conditioning and analog-to-digital (digital-to-analog) conversion, (3) microprocessor, (4) on-board memory (e.g., Flash or EEPROM) for metadata storage and executable software, and (5) embedded network interfaces to create a powerful, scalable, re-configurable, and reliable distributed test instrument. Autonomous facility health-enabled test instrumentation is built upon an open-system architecture with standardized protocol modules easily to interface with industry standards.

Primary U.S. Work Locations and Key Partners





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Organizational Responsibility

Responsible Mission Directorate:

Space Technology Mission Directorate (STMD)

Lead Center / Facility:

Glenn Research Center (GRC)

Responsible Program:

Small Business Innovation Research/Small Business Tech Transfer

Small Business Innovation Research/Small Business Tech Transfer

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Organizations Performing Work	Role	Type	Location
★Glenn Research Center(GRC)	Lead Organization	NASA Center	Cleveland, Ohio
Mobitrum Corporation	Supporting Organization	Industry	McLean, Virginia

Primary U.S. Work Locations	
Ohio	Virginia

Project Management

Program Director:

Jason L Kessler

Program Manager:

Carlos Torrez

Technology Areas

Primary:

- TX13 Ground, Test, and Surface Systems
  - TX13.2 Test and Qualification
    - TX13.2.5 Flight and Ground Testing Methodologies